

Size-dependent concentration of N0 paramagnetic centres in HPHT nanodiamonds

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Abstract

© Kazan Federal University (KFU). Size-calibrated commercial nanodiamonds synthesized by high-pressure high-temperature (HPHT) technique were studied by high-frequency W- and conventional X-band electron paramagnetic resonance (EPR) spectroscopy. The numbers of spins in the studied samples were estimated. The coreshell model of the HPHT nanodiamonds was proposed to explain the observed dependence of the concentration of the N0 paramagnetic centers. Two other observed paramagnetic centers are attributed to the two types of structures in the nanodiamond shell.

Keywords

Crystal defect, Diamond, EPR, ESR, Nanodiamond